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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,523

08/07/2006

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EXAMINER

NGUYEN, DAO H

ART UNIT

PAPER NUMBER

2818

MAIL DATE

DELIVERY MODE

11/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,523	Applicant(s) SUGAWARA, YOSHITAKA	
	Examiner DAO H. NGUYEN	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 4-6, 10 and 11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/07/06 & 06/04/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the communications dated 09/18/2008.

Claims 1-11 are active in this application.

Applicant made a provisional election **without traverse** to prosecute the invention of Species 1, claims 1-3, and 7-9, is acknowledged.

Claims 4-6 and 10-11 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected group there being no allowable generic or linking claim.

Applicant has the right to file a divisional application covering the subject matter of the non-elected claims.

Acknowledges

2. Receipt is acknowledged of the following items from the Applicant.

Information Disclosure Statement (IDS) filed on 08/07/2006 and 06/04/2008. The references cited on the PTOL 1449 form have been considered.

Applicant is requested to cite any relevant prior art if being aware on form PTO-1449 in accordance with the guidelines set for in M.P.E.P. 609.

Foreign Priority

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3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. The drawings are objected to for the following reasons.

Figure 7 is not designated by a legend such as "Prior Art". The Legend is necessary in order to clarify what applicant's invention is (see MPEP § 608.02g).

A proposed drawing correction or corrected drawings are required in reply to the Office Action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. However, formal correction of the noted defect(s) can be deferred until the application is allowed by the examiner (see MPEP § 608.02v).

Specification

5. The specification is objected to for the following reason:

The spacing of the lines of the specification is such as to make reading difficult. New application papers with lines 1½ or double spaced on good quality paper are required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

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requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

6. The claim is objected to because of the following reasons:

Claim 7, line 3, the term “**fist** electrode” should be changed to – first electrode --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim(s) 1-3 and 7-9 are rejected under 35 U. S. C. § 102 (b) as being anticipated by Hara et al. (US 6,054,752)

Regarding to claim 1, Hara discloses a wide-gap semiconductor device, shown in figs. 1, 2, 8, 11, 12, comprising:

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a first pn junction 3:4 formed by p-type and n-type semiconductor regions (p-type 3 and n-type 4, fig. 8) which operate as a bipolar semiconductor device, and forming a current path in the semiconductor regions 3, 4;

an electric field relaxation layer 6 provided within one of the semiconductor regions (region 3) so as to be separated to an edge of the first pn junction 3:4, having a conduction type (n-type) different from that (p-type 3) of the one of the semiconductor regions, and forming a second pn junction 3:6 with the one of the semiconductor regions surrounding thereof;

a first electrode 12/40 electrically connected to (region 4) the other of the semiconductor regions forming the first pn junction, opposed the one of the semiconductor regions between the first and second pn junctions with an electrical insulation film 9/11 being intervening, and functioning as a current passage of the bipolar semiconductor device; and

a second electrode 13 connected to the one of the semiconductor regions.

Regarding to claim 2, Hara discloses the wide-gap semiconductor device wherein application of a voltage V_S between the first electrode 12/40 and the semiconductor regions so as to generate a depletion layer in the one of the semiconductor regions (region 3) including the first pn junction causes that the first electrode imparts an electric field effect to the one of the semiconductor regions between the first and second pn junctions via the electrical insulation film 9/11, thereby

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the first and second pn junctions being electrically connected. See fig. 8.

Regarding to claim 3, Hara discloses the wide-gap semiconductor device wherein the one of the semiconductor region is formed by a first semiconductor layer 3 and the other of the semiconductor regions is formed by a second semiconductor layer 4,

wherein the first semiconductor layer 3 (p-type) has a first conduction type which is any one of the p-type and n-type, and the second semiconductor layer 4 (n-type) having a second conduction type which is the other of the p-type and n-type,

wherein the first semiconductor layer 3 and the second semiconductor layer 4 forms a mesa structure,

wherein the electric field relaxation layer 6 is formed in the first semiconductor layer 3 having the first conduction type (p-type) so as to be separated from the first pn junction 3:4, and has the second conduction type (n-type),

wherein the first electrode 12/40 is opposed to the first semiconductor layer 3 between the first pn junction 3:4 and the electric field relaxation layer 6 with the electric insulation layer 9/11 intervening, and is connected to the second semiconductor layer 4 and

wherein the second electrode 13 is connected to the first semiconductor layer having the first conduction type. See fig. 8.

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Regarding to claim 7, Hara discloses the wide-gap semiconductor device further comprising an ohmic contact layer provided between the first electrode and the semiconductor region electrically connected to the first electrode (col. 28, lines 34-39),

wherein the insulation film 9/11 is provided on a face of the semiconductor region so that a prescribed opening is kept between the insulation film and an edge of the ohmic contact layer. See figs. 1, 8.

Regarding to claim 8, Hara discloses the wide-gap semiconductor device wherein the first electrode has a protruding portion formed so as to enter into the opening. See figs. 1, 8.

Regarding to claim 9, Hara discloses the wide-gap semiconductor device wherein the first electrode 12/40 opposed to the semiconductor regions between the first and second pn junctions with the electrical insulation film 9/11 being intervening is extended so as to overlap by a prescribed distance with the electric field relaxation layer forming the second pn junction with the electrical insulation film being intervening. See figs. 1, 8.

Conclusion

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9. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (571)272-1791. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke, can be reached on (571)272-1657. The fax numbers for all communication(s) is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1633.

/DAO H NGUYEN/

Primary Examiner, Art Unit 2818
November 5, 2008